

***** Final ESA Section 7 Consultation Handbook, March 1998 *****

(A) Biological opinion

"... the Secretary shall provide to the Federal agency and the applicant, if any, a written statement setting forth the Secretary's opinion, and a summary of the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat. If jeopardy or adverse modification is found, the Secretary shall suggest those reasonable and prudent alternatives which he believes would not violate subsection (a)(2) and can be taken by the Federal agency or applicant in implementing the agency action.

Section 7(b)(3)(A) of the Endangered Species Act

A formal biological opinion consists of a description of the proposed action, status of the species/critical habitat, the environmental baseline, effects of the action, cumulative effects, the Services' conclusion of jeopardy/no jeopardy and/or adverse modification/no adverse modification, and reasonable and prudent alternatives, as appropriate.

Description of the proposed action

Provide descriptions of the proposed action and the action area (area including all direct and indirect effects). The description of the proposed action does not have to be comprehensive if details can be referenced from NEPA documents or other descriptions provided. However, some small actions may not have complete or formal descriptions of the proposed action, or the project's components may be scattered throughout a biological evaluation (or similar document), draft NEPA documents, draft plans for different portions of the action, miscellaneous policy and guidance documents, letters, telephone records, meeting notes, and other documents. In such cases, a comprehensive project description in the biological opinion is vital to determining the scope of the proposed action. The draft project description may be sent to the action agency for review to eliminate any inaccuracies regarding the scope of the action. This section should summarize enough information for the reader to understand and evaluate the action under consideration in the biological opinion.

If the Services determine that the action area differs from that described by the agency or applicant, the Services should discuss their rationale for the change with the agency or applicant. Occasionally, an action agency or an applicant disagrees with the Services' delineation of the action area. This generally occurs when impacts to the species/habitat result from indirect or interrelated/interdependent effects. Reaching agreement on the description of the action area is desirable, but ultimately the Services are responsible for this biological determination (Figures 4-3, 4-4 and 4-5). Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area as determined by the Services. If appropriate, including a transition sentence clarifies why the action area was described in a manner differing from that provided by the action agency: "The Services have described the

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action area to include.... for reasons that will be explained and discussed in the 'Effects of the proposed action' section of this consultation." Maps and other graphics also may be appropriate.

Figure 4-3. Example of an action area within the species' range.

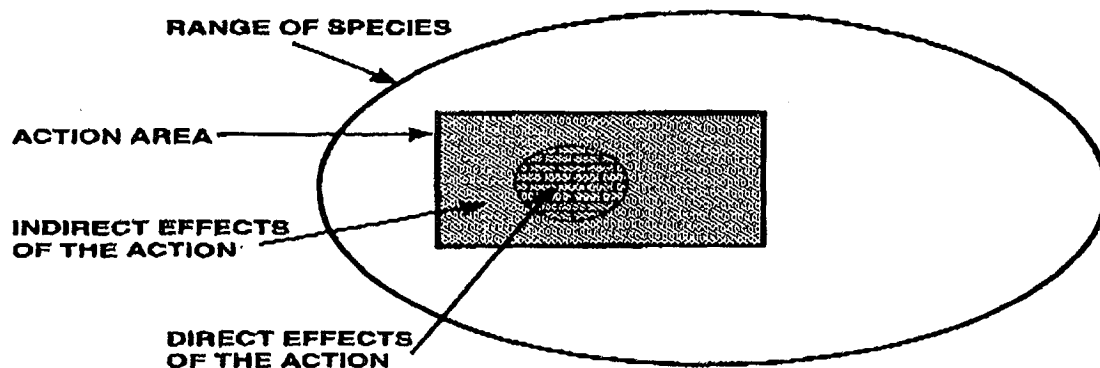
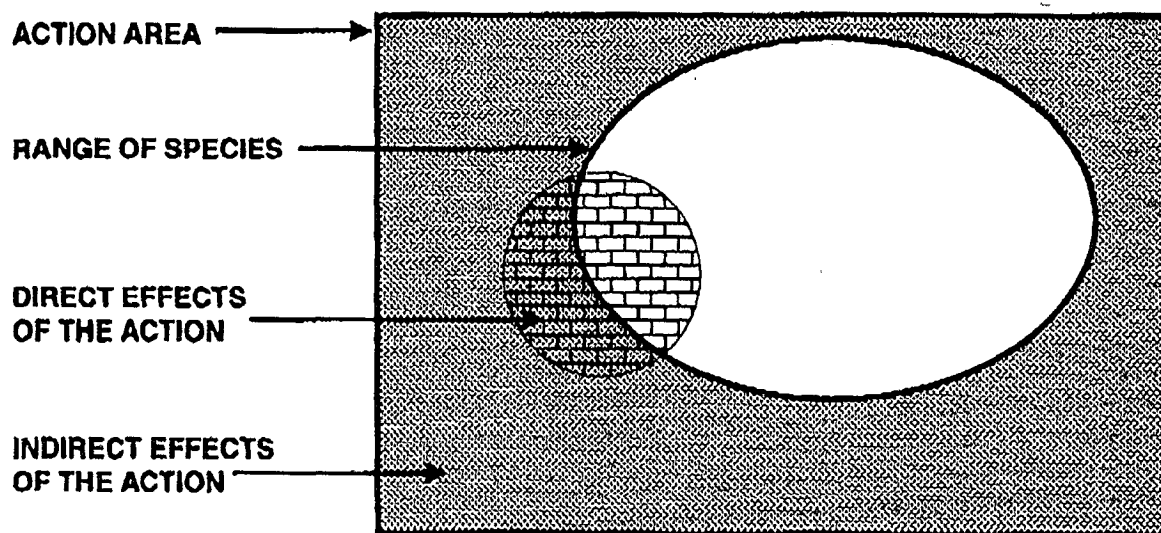


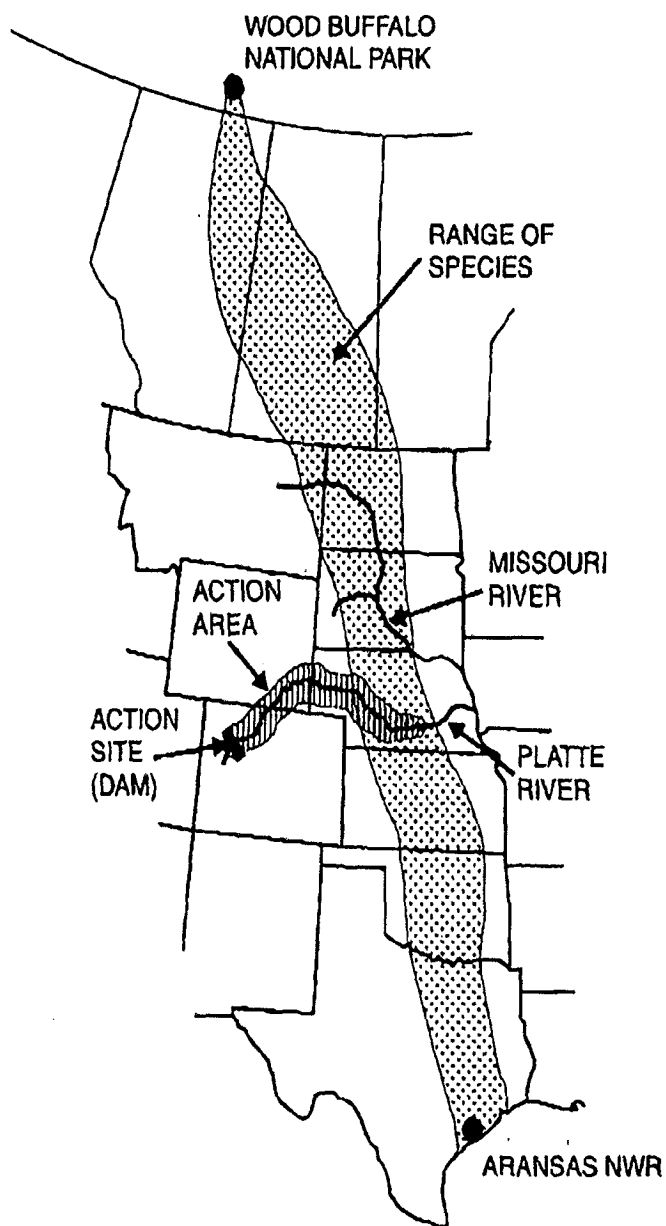
Figure 4-4. Example of an action area that encompasses the species' range.



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Figure 4-5. Example of an action area involving an effect not at the project site.

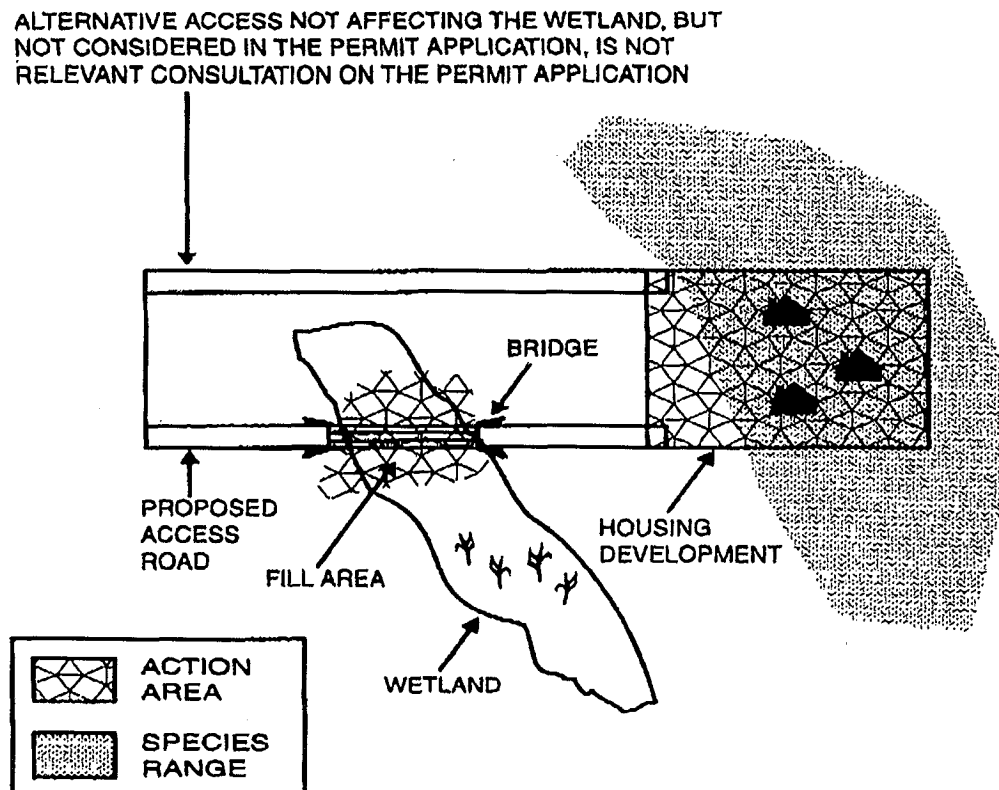
A dam on the Platte River in Colorado (project site) also may affect the water regime for whooping crane critical habitat (action area) 150 miles downstream in Nebraska.



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Description of the proposed action (cont'd)

Determining the action area relates only to the action proposed by the action agency. Even if the applicant has an alternative not requiring Federal permits or funding, this does not enter into the Services' analyses. Such alternatives can be discussed in the reasonable and prudent alternatives or conservation recommendations if the alternative is within the agency's jurisdiction. The action area should be determined based on consideration of all direct and indirect effects of the proposed agency action [50 CFR 402.02 and 402.14(h)(2)]. For example (Figure 4-6), if the proposed action is a wetland fill (requiring a federal permit) to accommodate access to a proposed development (the actual area of impact to the species), then the development is included in the action area. Whether or not the applicant can build a road that does not impact the wetland, the analysis of effects of the action still encompasses the proposed development. If the applicant is seriously considering the alternative with no Federal nexus, the applicant should be advised of the need for acquiring a section 10(a)(1)(B) permit before proceeding with development for actions that will result in a taking.

Figure 4-6. Determining the action area.

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Describing the proposed action also includes any conservation measures proposed as part of the action. When used in the context of the Act, "conservation measures" represent actions pledged in the project description that the action agency or the applicant will implement to further the recovery of the species under review. Such measures may be tasks recommended in the species' recovery plan, should be closely related to the action, and should be achievable within the authority of the action agency or applicant. For example, degraded habitat acquired by the applicant adjacent to the area to be developed may be improved as a conservation measure prior to project completion so that individuals depending on the habitat to be destroyed by development can be relocated or allowed to relocate on the improved site.

In this example, the activity carries out a recognized conservation need for the species. The beneficial effects of the conservation measure are taken into consideration for both **jeopardy** and incidental take analyses. However, remember that the objective of the incidental take analysis under section 7 is minimization, not mitigation. If the conservation measure only protects off-site habitat and does not minimize impacts to affected individuals in the action area, the beneficial effects of the conservation measure are irrelevant to the incidental take analysis. Discussion of the limits for minimization under section 7, and distinction from mitigation allowances under section 10, can be found in Section 2.1(C) of this handbook.

Since conservation measures are part of the proposed action, their implementation is required under the terms of the consultation. However, conservation recommendations (which may be provided at the end of the consultation package) are discretionary suggestions made by the Services for consideration by the agency or applicant.

Status of the species/critical habitat

This section presents the biological or ecological information relevant to formulating the biological opinion. Appropriate information on the species' life history, its habitat and distribution, and other data on factors necessary to its survival, is included to provide background for analyses in later sections. Note that when designated critical habitat is affected a companion analysis is done for that habitat. This analysis documents the effects of all past human and natural activities or events that have led to the current status of the species. This information is presented in listing documents, and refined in recovery plans.

When the Services' review focuses on the effects of the action on a discrete recovery unit or designated critical habitat unit, this section of the biological opinion describes the status of that unit and its significance to the species as listed or to the designated critical habitat. For example, if the opinion focuses on the Chesapeake Bay recovery unit of the bald eagle, the status of that recovery unit is discussed including the recovery unit's role in both the survival and recovery of the species as listed.

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The following types of information should be considered for inclusion in the biological opinion. All information may not be available for all species. However, Services biologists should use the best available scientific or commercial data. Pertinent information can be gathered from listing rules, including critical habitat designations, recovery plans, and published and unpublished studies done on the species. Once this section is developed for a given species, it can be used in successive biological opinions. Modification is necessary only when new information is developed.

a. Species/critical habitat description

This section should briefly describe the species and/or critical habitat, discussing the current legal status of the species, including listing history, and current known range of the listed species found in the action area. For critical habitat, the discussion should include the extent of designated critical habitat, the primary constituent elements identified in the final rule, and any activities which have been identified as having the potential for altering the primary constituent elements.

b. Life history

A large number of life history variables are relevant to jeopardy analyses. These variables help determine a species' population size, age distribution, sensitivity to a proposed action's effects, ability to recover from adverse effects, and ability to recolonize areas from which it has been extirpated. Relevant life history variables include, but are not limited to: longevity; age distribution; age to maturity; reproductive strategy (for example, the number of times mature individuals reproduce in a lifetime, or whether mature individuals reproduce sexually or asexually); recruitment; seasonal distribution patterns; biogeography; food habits; niche; life cycle; hosts and symbionts; predators and competitors; and disease factors.

c. Population dynamics

The size of a population and its natural variance over time are important characteristics affecting the species' response to disturbance factors. For many species, there is only cursory natural history or status survey information available. However, detailed demographic analyses have recently been undertaken for some species. The level of discussion in this section will depend upon the detail and quality of the information available.

Population size: This species characteristic is often emphasized in consultations. Reduction in population size may jeopardize the continued existence of threatened or endangered species because the longer a species remains at low population levels, the greater the probability of extinction from chance events, inbreeding depression, or additional environmental disturbance. However, although population size has a clear relationship to a species' extinction probability, it can be less important than population variability and should be used carefully. How long a

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species will persist before extinction depends on more than population size. Large populations may not protect a species from extinction in the face of extreme environmental disturbance.

Population variability: Fluctuations in a species' population over time can affect significantly the probability of its extinction. Population variability is affected by several characteristics of a species' life history: unstable age distributions and reproductive rates; widely variable mortalities resulting from unstable food resources or predation; population density; sex ratios; recolonization rates; and genetic viability. As a population fluctuates, one or more factors can lead to a chance extinction, e.g., irreversibly lowering population size to a point where it can no longer recover. Consequently, an action increasing a species' population variability may affect the continued existence of the species more significantly than a reduction in population size.

Population stability: Population stability is the ability of a species' population to resist change or dramatic fluctuations over time. It directly affects a species' sensitivity to the adverse effects of a proposed action. Even-age distribution, high reproductive rates, or long life spans with multiple reproductive periods can stabilize a population.

d. Status and distribution

Information on the status and distribution of listed species and designated critical habitat helps establish the environmental basis for a consultation. The Federal Register Notice with the final rule listing a species or designating critical habitat is a good starting point for gathering this type of information. The following factors should provide a reasonable environmental setting within which to consider the action and cumulative effects for the consultation.

Reasons for listing: The reasons for listing a species or designating critical habitat are important considerations. For example, a species listed because of commercial exploitation may be less sensitive to habitat loss than a species listed because of habitat loss.

Rangewide trend: Many listed species are declining throughout their range, therefore the overall population trend of a species has implications for new proposals that could result in additional effects on the species. The trends of the remaining populations of listed species form the basis for evaluating the effects of a proposed action on that species.

New threats: Often, factors not considered when a species was first listed can threaten its continued existence, and must be considered when establishing the environmental baseline. For example, the zebra mussel (*Dreissena polymorpha*), an exotic species threatening native mussel fauna throughout its range, wasn't considered when most native mussels were listed.

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c. Analysis of the species/critical habitat likely to be affected

This section summarizes the previous discussion in Status of the species/ critical habitat and identifies those species or designated critical habitat likely to be adversely affected by the proposed action, which will be considered further in the remaining sections of the biological opinion. If the action agency requests consultation on a beneficial action, that will be noted here. Other listed species/designated critical habitat present in the project area are also listed here along with the reasons they are not likely to be adversely affected. Since the Services concur with the action agency's determination of "is not likely to adversely affect," a statement that those species will not be considered further in the consultation should be included.

Environmental baseline

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem, within the action area. The environmental baseline is a "snapshot" of a species' health at a specified point in time. It does not include the effects of the action under review in the consultation.

a. Status of the species within the action area

Unless the species' range is wholly contained within the action area, this analysis is a subset of the preceding rangewide status discussion. The purpose is to analyze the effects on the species and/or critical habitat at the action level. For example, the following issues are considered:

- o the percent or amount of the species range or designated critical habitat in the action area;
- o whether the effect is quantitative, qualitative, or both;
- o the distribution of the affected and unaffected habitat; and
- o if critical habitat will be impacted, the effect on the constituent elements.

b. Factors affecting species environment within the action area

This analysis describes factors affecting the environment of the species or critical habitat in the action area (Figure 4-3). The baseline includes State, tribal, local, and private actions already affecting the species or that will occur contemporaneously with the consultation in progress. Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical habitat.